



# Readme File for QPM Patch 2.1.1

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## Description

This patch enhances the functionality of QoS Policy Manager 2.1 by providing:

- QoS support for additional devices.
- Additional QoS features, including new and improved voice templates.
- Bug fixes.



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## Related Documentation

Detailed documentation for QPM 2.1 can be found at:

<http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/qos/qpm21/index.htm>

## Downloading and Installing the Patch

The following sections list the requirements for installing the patch and provide installation instructions.

### Hardware and Software Requirements

- QoS Policy Manager 2.1 must be installed before you install this patch.
- This patch needs to be installed on both your remote and complete installations.

### Installation Procedure

Use the following procedure to download and install the patch.

#### Procedure

1. Go to the following location on Cisco.com:  
<http://www.cisco.com/cgi-bin/tablebuild.pl/qos-patches>
2. Click on QoSPolicyManager-Patch2.1.1.exe to download the patch to your hard drive.
3. If you have the Policy Manager or Distribution Manager windows open, you are recommended to close them.
4. Locate the downloaded file on your hard drive and double-click it. This will start the installation on your system. Before replacing files, the installation will stop the Cisco QoS Manager service and will restart it after the installation completes.

# QoS Support for Additional Devices

QPM 2.1.1 provides support for the following additional devices:

- Catalyst 4000 Layer 2
- Catalyst 6000 with PFC2 (running CatOS)
- Catalyst 6000 with PFC2 (running IOS)
- Catalyst 6000 with no PFC
- VG200

**Note**

For detailed information about QPM 2.1.1 device and QoS feature support, go to: <http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/qos/qpm21/qpm21dev/index.htm>

The following sections describe the new features supported on Catalyst 4000 Layer 2 devices and Catalyst 6000 devices with PFC2.

## CoS Mapping and Default CoS on Catalyst 4000 Layer 2

On Catalyst 4000 Layer 2 switches, QPM 2.1.1 allows you to:

- **Map CoS values to transmit queues**—This feature applies to 2q1t queuing. Each pair of CoS values is associated with either queue 1 or queue 2.
- **Configure the default CoS value for the switch**—This default value will be assigned to any unclassified frames received on any port on the switch.

Access these features as follows:

1. In the Device Properties dialog box for the switch, click **QoS Property**.
2. In the displayed Properties of Cat4000 Queuing dialog box, select the **Enable Custom CoS Mapping** check box.
3. **CoS Mapping:** For each pair of CoS values, select the queue to which packets with those CoS values will be directed.
4. **Default CoS Value:** In the Default CoS Value field, select the required value from the dropdown list.
5. Click **OK** to return to the Device Properties dialog box.

## Dual-Rate Aggregate Limiting on Catalyst 6000 with PFC2

On Catalyst 6000 devices with PFC2, you can create a dual-rate aggregate limiting (policing) rule with a normal rate and an excess rate.

The parameters that can be defined for an aggregate limiting policy (or a cross-interface aggregate limiting policy on a device group) are the same as for the Catalyst 6000 device, with the following additions:

- **Excess Rate**—The maximum rate for traffic that is in excess of the normal rate.
- **Violate Action**—The action to be performed for traffic that exceeds the Excess Rate, either none, markdown or drop. If the action is markdown, you can define the markdown values in the Excess Rate tab in the DSCP Markdown Table, accessed from the Device Properties window. If you do not define these values, the default values will be used.




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**Note** For Catalyst 6000 PFC2 devices running IOS, the Violate Action cannot be less severe than the Exceed Action.

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**Note** For Catalyst 6000 PFC2 devices running CatOS, if the Excess Rate and Violate Action parameters are used, the Exceed Action will always be Markdown (policed-dscp).

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## New Features

QPM 2.1.1 provides the following new features:

- [New and Modified Voice Templates, page 5](#)
- [Cross-Database Duplication of New or Updated Device Groups, page 10](#)
- [Microflow and Aggregate/Cross-Interface Aggregate Limiting on the Same ACL on Catalyst 6000 Devices Running CatOS, page 12](#)
- [Default ACL on Catalyst 6000 Devices \(CatOS\), page 13](#)
- [Support for Import of RME Version 2 Device Inventory Files, page 13](#)

## New and Modified Voice Templates

New voice templates have been added to the IP\_Telephony\_Template database, and some existing voice templates have been changed, to provide improved support for QoS configuration for IP telephony networks.



### Note

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After you install the patch, you need to make sure that your voice templates are up to date in all relevant databases. To copy the new and updated templates to your databases, open the IP\_Telephony\_Template database and follow the procedure in [Copying All Device Groups in a Database to Other Databases, page 11](#).

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### Catalyst 6000 Switches with a PFC2 Card

The following new voice templates have been added for ports on Catalyst 6000 switches with a PFC2 card:

#### IP Phone Ports

- **AccPFC2=>IP-Phones**—This device group has the same properties and policies as the Acc6000=>IP-Phones, except for the model, which is Cat6000(PFC2).
- **AccDistPFC2VoiceVLAN**—This device group has the same properties and policies as the AccDist6K-VoiceVLAN, except for the model, which is Cat6000(PFC2).

#### SoftPhone Ports

- **AccPFC2=>SoftPhones**—This device group has the same properties and policies as the Acc6000=>SoftPhones, except for the model, which is Cat6000(PFC2).

#### CallManager and Voice Gateway Ready Ports

- **AccPFC2-VOIPControl**—This device group has the same properties and policies as the Acc6000=>VOIPControl, except for the model, which is Cat6000(PFC2).

**Uplink Ports (from Access to Distribution or Core)**

- **AccPFC2\_GE=>Dist**—This device group has the same properties and policies as the Acc6000\_GE=>Dist, except for the model, which is Cat6000(PFC2).

**Downlink Ports (from Distribution or Core to Access Layer Catalyst 6000)**

- **DistPFC2=>Acc6k-PFC**—This device group has the same properties and policies as the Dist=>Acc6K-PFC, except for the model, which is Cat6000(PFC2).
- **DistIOSPFC2=>6k-PFC**—This device group has the same properties and policies as the Dist(IOC)=>6K-PFC, except for the model, which is Cat6000(PFC2-IOC).

**Downlink Ports (from Distribution or Core to Access Layer Catalyst 3500 or Catalyst 4000)**

- **DistPFC2=>6KNonPFC**—This device group has the same properties and policies as the Dist=>AccNon6KPFC, except for the model, which is Cat6000(PFC2).




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**Note** Because the QoS style in this template is VLAN based, you should also use the AccDistPFC2VoiceVLAN template.

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- **DistIOSPFC2=>NonPFC**—This device group has the same properties and policies as the Dist(IOC)=>Non6KPFC, except for the model, which is Cat6000(PFC2-IOC).
- **DistIOSPFC2VoiceVLAN**—This device group has the same properties and policies as the Dist(IOC)-VoiceVLAN, except for the model, which is Cat6000(PFC2-IOC).

**Interface from Distribution or Core Switch to WAN Router**

- **DistPFC2=>Router-WAN**—This device group has the same properties and policies as the Dist=Router-WAN, except for the model, which is Cat6000(PFC2).
- **DistPFC2\_GE=>RoutWAN**—This device group has the same properties and policies as the Dist\_GE=Router-WAN, except for the model, which is Cat6000(PFC2).

- **DistIOSPFC2=>RoutWAN**—This device group has the same properties and policies as the Dist(IOS)=RouterWAN, except for the model, which is Cat6000(PFC2-IOS).

**Note**


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For more information about the corresponding voice templates for the Catalyst 6000, see the user guide for QoS Policy Manager 2.1, Chapter 9, Configuring QoS for IP Telephony.

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## Catalyst 6000 Layer 2 Switches without a PFC Card

The following new voice templates have been added for ports on Catalyst 6000 Layer 2 switches without a PFC card:

### IP Phone Ports

- **Acc6kL2=>IP-Phones**

The following device group properties are configured for this template:

- Model: Cat6000L2
- Mapped Software Version: 5.5
- Group Contains Interfaces, Type: ethernet, Card Type: Non-VIP
- QoS Property: 2Q2T/1P2Q2T
- Trust State: Trust CoS, Trust-ext: Untrusted

The following QoS policies are configured for this template:

- Trust-ext untrusted
- Trust CoS

### Uplink Ports (from Access to Distribution or Core)

- **Acc6kL2=>Dist**

The following device group properties are configured for this template:

- Model: Cat6000L2
- Mapped Software Version: 5.5
- Group Contains Interfaces, Type: gigabitEthernet, Card Type: Non-VIP

- QoS Property: 2Q2T/1P2Q2T
- Trust State: Trust CoS, Trust-ext: None

The following QoS policies are configured for this template:

- Trust CoS from the distribution layer

## Catalyst 4000 WS-X4232 with Layer 3 Capabilities

The following new voice template has been added for ports on Catalyst 4000 WS-X4232 with layer 3 capabilities:

### IP Phone Ports

- **Acc4000-L3=>Dist**

The following device group properties are configured for this template:

- Model: Cat4000-L3
- Mapped Software Version: 12.1
- Group Contains Interfaces, Type: Any, Card Type: Non-VIP
- QoS Property: WRR

The following QoS policies are configured for this template:

- Prioritize VOIP and VOIP control by weighting the WRR queues, 1,3,4,2

## Point to Point WAN Links on VIP Cards

The following new templates have been added for high speed point-to-point WAN links on VIP cards. These templates are similar to the corresponding group for non VIP cards, but use Distributed Low Latency Queuing (dLLQ) instead of LLQ.

- **WAN-VIP7500HDLC-High**

The following device group properties are configured for this template:

- Model: 7500
- Mapped Software Version: 12.2
- Group Contains Interfaces, Type: propPointToPointSerial, Card Type: VIP
- QoS Property: Class Based QoS



The following QoS policies are configured for this template:

- Set queuing for voice traffic—Bandwidth=40%, LLQ enabled
- Set queuing for control traffic—Drop mechanism is TAIL, Bandwidth=10%
- Set queuing for class-default—Drop mechanism is TAIL, queuing is WFQ

- **WAN-VIP6kIosHdlcHigh**

The following device group properties are configured for this template:

- Model: Cat6000(10S)
- Mapped Software Version: 12.1(6)E
- Group Contains Interfaces, Type: propPointToPointSerial, Card Type: VIP
- QoS Property: Class Based QoS

The following QoS policies are configured for this template:

- Set queuing for voice traffic—Bandwidth=40%, LLQ enabled
- Set queuing for control traffic—Drop mechanism is TAIL, Bandwidth=10%
- Set queuing for class-default—Drop mechanism is TAIL, queuing is WFQ

- **WAN-VIP6kIosPfc2Hdlc**—This template has the same properties and policies as WAN-VIP6kIosHdlcHigh except that the model is Cat6000(PFC2-10S)

## Modified Templates

- The WAN-PPP-High(>768k) template has been renamed and is now the WAN-HDLC-High(>768k) template.

## Per Device Scheduling

QoS scheduling properties and CoS to DSCP mapping for Catalyst switches are configured on a device basis, and therefore cannot be included in the QoS templates. These QoS properties are set automatically by QPM when the device is added to the IP Telephony QoS database.

The following properties have been added for the Catalyst 4000 devices:

- All traffic with CoS values of 3 through 7 are placed in queue number 2, which is the highest priority queue.



Note

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For more information about the QPM voice templates, see the user guide for QoS Policy Manager 2.1, Chapter 9, Configuring QoS for IP Telephony.

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## Cross-Database Duplication of New or Updated Device Groups

This feature enables you to copy device groups from one QPM database to other QPM databases. In addition, if you have the same device group in several databases, you can update the device group once, and then apply your updates in all other databases in which the device group is present.



Note

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In the QPM 2.1.1 patch, new IP telephony templates have been added and some existing templates have been modified. Therefore, after you install the patch, you are recommended to use this feature to make sure that your voice templates are up-to-date in all the relevant databases.

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## Copying a New or Updated Device Group to Other Databases

After you have created a new device group in one database, you can copy the device group (including its name, QoS properties and QoS policies) to other databases. You can also copy updates you have made to an existing device group to the same device group in other databases, as long as the device group has the identical name and constraints (device model, software version, interface type, card type, interfaces/sub-interfaces and QoS property).

**Note**


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Device groups with policies that use application services or host groups in their filters, cannot be added or updated to other databases.

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**Procedure**

1. Right-click on the device group in the tree view pane or select **Devices>Device Groups**.
2. Select the relevant option, either **Add Device Group to Other Databases** or **Update Device Group In Other Databases**. A message is displayed requesting confirmation of this action for each of your existing databases in turn.
3. Click **Yes** to confirm that you want to add the selected device group to the specified database. Click **Yes to All** to add the device group to all your databases.

**Note**


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If you are adding a device group to other databases and a device group with the same name exists in any of the databases, the device group will not be copied to that database and you will receive a message informing you of this.

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**Note**


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QPM 2.1.1 cannot read databases from previous QPM versions. If any of your target databases is from an older version, you will be prompted to upgrade the database, otherwise the device group will not be added/updated to that database.

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## Copying All Device Groups in a Database to Other Databases

You can copy all the device groups in a database to other databases. All new device groups will be added to other databases as long as no device group with the same name exists in the other databases. Modifications made to device groups will be copied to device groups with the identical name and constraints in other databases.

**Note**

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Device groups with policies that use application services or host groups in their filters, cannot be added or updated to other databases.

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**Procedure**

1. Right-click anywhere in the tree view pane or select **Devices>Device Groups**.
2. Select the relevant option, either **Add All Device Groups To Other Databases** or **Update All Device Groups In Other Databases**. A message is displayed requesting confirmation of this action for each of your existing databases in turn.
3. Click **Yes** to confirm that you want to add all the device groups to the specified database. Click **Yes to All** to add all the device groups to all your databases.

## Restoring the Previous Database Version

When you add/update device groups in other databases, QPM makes a backup copy of each database before it is changed by your action. This backup file is located in the Database directory under the QPM root directory (for example, new\_database.epd.bak).

To go back to the previous version of a database, delete the current .epd file and rename the .epd.bak file.

## Microflow and Aggregate/Cross-Interface Aggregate Limiting on the Same ACL on Catalyst 6000 Devices Running CatOS

On Catalyst 6000 devices, you can define a single limiting policy, with a single filter, that includes both microflow and aggregate limiting (or cross-interface aggregate limiting for device groups).

The Limiting page of the Policy Wizard provides two columns of fields, one for microflow limiting and one for aggregate limiting. Select the check box(es) at the top of the column(s) to enable the fields, and fill in the values accordingly.

**Note**

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You can define cross-interface aggregate limiting on device groups by selecting **Cross-Int Aggregate** in the Limiting Type field.

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## Default ACL on Catalyst 6000 Devices (CatOS)

You can define a default ACL on a Catalyst 6000 device running CatOS, to be used for traffic that does not match any named ACL on the device. You can color this traffic with a DSCP value, or you can trust it by CoS, DSCP or IP Precedence.

To use this feature:

1. Click the **Default ACL** button in the Device Properties dialog box.
2. Select the **Enable Default ACL** check box.
3. Select the action to be performed on the traffic.
4. Click **OK** to return to the Device Properties dialog box.

## Support for Import of RME Version 2 Device Inventory Files

QPM now supports the import of CSV or DIF Version 2.0 files from RME.

# Resolved Problems

The QPM 2.1.1 patch resolved the following problems, that existed in QPM 2.1.

**Table 1** *QPM 2.1.1 Resolved Problems*

Bug ID	Summary	Additional Information
CSCdu57179	If the QoS property on a Catalyst 6000 (IOS) device was changed to Do Not Change, QPM only removed the policies on the current interface, and did not remove the policies on the rest of the interfaces in the ASIC group.	QPM now removes all policies on all the interfaces in the ASIC group, if the QoS property is changed to Do Not Change, since the policies are no longer valid.
CSCdu36423	QPM did not recognize PBR coloring policy on a subinterface without FRTS.	You no longer need to configure FRTS on the subinterface or upgrade the IOS software on the device to a version that supports CAR coloring (IOS 12.0 and higher) to work around this problem.
CSCdu39495	FRF bandwidth percentage was calculated according to interface rate and not minCIR.	You can now leave the Minimum Rate field in the Interface Properties dialog box blank if you want to use the default minCIR value.
CSCdu39627	QPM uploaded trust policies on Catalyst 6000(IOS) with Trust CoS, even if the policies specified Trust DSCP or Trust IP Precedence.	None.
CSCdu39744	QPM deployed adjusted rate values for limiting policies on Catalyst 4000-L3 devices	None.
CSCdu39761	Duplicate class-map naming on device groups with FRTS and Class Based QoS.	You can now define policies with different directions on this device group.
CSCdu40749	QPM did not upload dFRF on a 7500 VIP device with 12.1(6)E and CBWFQ.	None.

# Known Problems

The following problems are known to exist in QPM 2.1.1.

You can track problems using the Cisco bug tracking tool, Bug Navigator II. To access Bug Navigator II, log into Cisco.com and select **Service & Support > Technical Support Help—Cisco TAC > Tools > Software Bug Toolkit > Bug Navigator II**, or enter the following URL in your web browser:  
<http://www.cisco.com/support/bugtools>.

*Table 2 QPM 2.1.1 Known Problems*

Bug ID	Summary	Explanation
CSCdu72386	Access Violation error when saving a DB with Cat8K device.	Attempts to save a database that contains a Catalyst 8500 device may be unsuccessful and the policy configurations in that database may be lost.  <b>Workaround:</b> Save Catalyst 8500 devices in a separate database.
CSCdv20264	Deploy error on Cat6K-IOS/PFC2 DGs with QoS property “Defined by Interface.”	If the QoS Property for Catalyst 6000 (IOS) or Catalyst 6000 (PFC2-IOS) device groups is Defined by Interface and you edit a policy and redeploy, the deployment fails.  <b>Workaround:</b> Do not use Defined by Interface as the QoS Property for these device groups.
CSCdv29919	Cat6K-NoPFC upload doesn't show Trust state.	Uploading the device configuration does not work on Catalyst 6000 devices without PFC.  <b>Workaround:</b> Define the device configuration manually.
CSCdv29924	Default ACL isn't uploaded on Cat6K.	The default ACL is not uploaded on Catalyst 6000 devices.  <b>Workaround:</b> Define the device configuration manually

